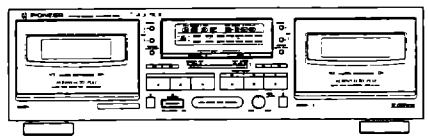
PIONEER
The Art of Entertainment

Service Manual



ORDER NO.
RRV1540

STEREO DOUBLE CASSETTE DECK

CT-W205R

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	CT-W205R		
KUXJ	O	AC120V	———
KCXJ	O	AC120V	———
HVXJ	O	AC230–240V	———
HYXJ	O	AC220–230V	———
HPWXJ	O	AC230–240V	———
SDXJ	O	AC110V/120–127V/220V/230–240V	With voltage selector
SLXJ	O	AC110V/120–127V/220V/230–240V	With voltage selector

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

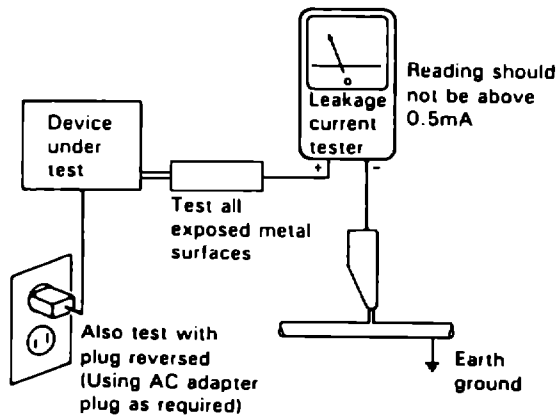
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

1. EXTERIOR AND PACKING

■ CONTRAST OF KUXJ, KCXJ, HVXJ, HYXJ, HPWXJ, SDXJ AND SLXJ TYPES

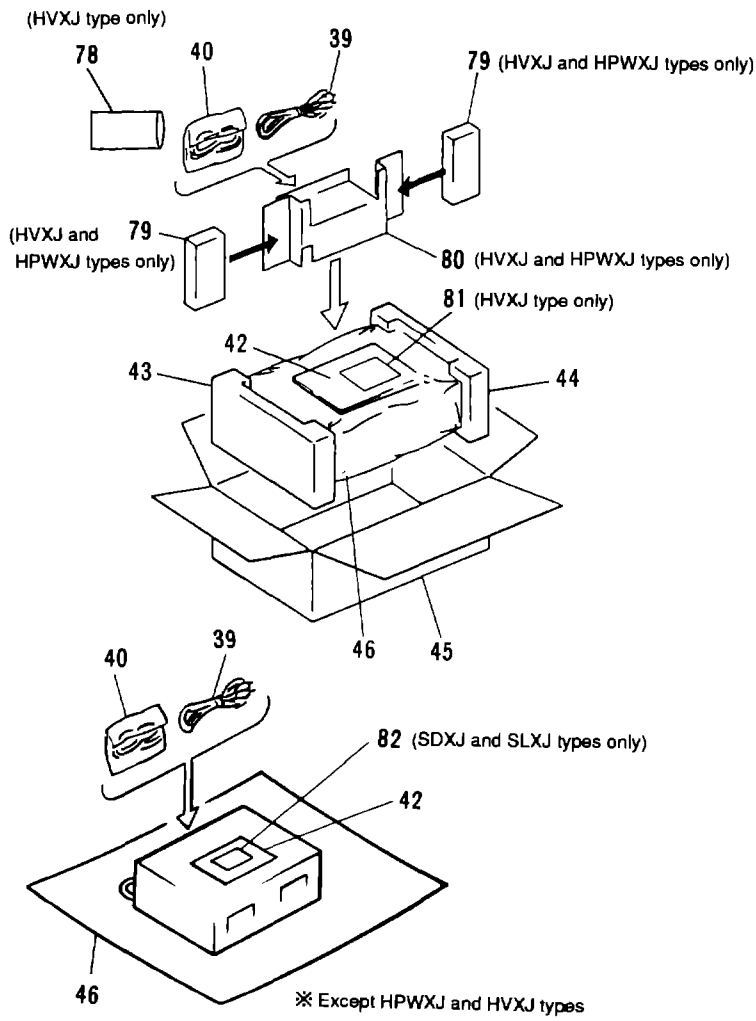
KUXJ, KCXJ, HVXJ, HYXJ, HPWXJ, SDXJ and SLXJ types have the same construction except for the following:

Mark	No.	Symbol & Description	Part No.							Remarks
			KUXJ type	KCXJ type	HVXJ type	HYXJ type	HPWXJ type	SDXJ type	SLXJ type	
	1	Main Unit	RWZ3930	RWZ3930	RWZ3727	RWZ3727	RWZ3952	RWZ3728	RWZ3728	
	2	SUB Unit	RWZ3931	RWZ3931	RWZ3729	RWZ3729	RWZ3953	RWZ3730	RWZ3730	
NSP	4	Transformer 2 Unit	RWZ3872	RWZ3872	RWZ3772	RWZ3772	RWZ3954	RWZ3954	RWZ3954	
⚠	5	Strain Relief	CM-22C	CM-22C	CM-22B	CM-22B	CM-22B	CM-22B	CM-22B	
⚠	6	Fuse (FU1, FU2, 1.25A)	REK1076	REK1076	Not used	Not used	Not used	Not used	Not used	
⚠	6	Fuse (FU1, FU2, T1.25A)	Not used	Not used	REK1023	REK1023	REK1023	REK1023	REK1023	
⚠	7	AC Power Cord	PDG1015	PDG1015	PDG1055	PDG1043	ADG1159	ADG1157	PDG1043	
⚠	9	Power Transformer (AC120V)	RTT1311	RTT1311	Not used	Not used	Not used	Not used	Not used	
⚠	9	Power Transformer (AC220–230V/230–240V)	Not used	Not used	RTT1312	RTT1312	RTT1312	Not used	Not used	
⚠	9	Power Transformer (AC110/120–127/220/230–240V)	Not used	Not used	Not used	Not used	Not used	RTT1313	RTT1313	
	12	Rubber Sheet	AEB1111	AEB1111	Not used	Not used	AEB1111	AEB1111	AEB1111	
	13	Foot Assy	AEC1531	AEC1531	Not used	Not used	AEC1531	AEC1531	AEC1531	
	28	Power Knob	RAC1883	RAC1883	RAC2110	RAC2110	RAC1883	RAC1883	RAC1883	
	32	Front Panel	RAH2704	RAH2704	RAH2703	RAH2703	RAH2704	RAH2704	RAH2704	
	38	Rear Panel	RNA2050	RNA2050	RNA2053	RNA2049	RNA2053	RNA2051	RNA2052	
	42	Operating Instructions (English)	RRB1169	RRB1169	RRB1169	Not used	RRB1169	Not used	Not used	
	42	Operating Instructions (French)	Not used	RRD1186	Not used	Not used	Not used	Not used	Not used	
	42	Operating Instructions (Dutch/Italian/German/Swedish/ Spanish/Portuguese)	Not used	Not used	Not used	RRE1131	Not used	Not used	Not used	
	42	Operating Instructions (English/French)	Not used	Not used	Not used	RRE1132	Not used	Not used	Not used	
	42	Operating Instructions (English/Spanish/Chinese)	Not used	Not used	Not used	Not used	Not used	RRE1130	RRE1130	
	45	Packing Case	RHG1717	RHG1717	RHG1758	RHG1716	RHG1719	RHG1718	RHG1718	
	51	65 Label	ORW1069	ORW1069	Not used	Not used	Not used	Not used	Not used	
NSP	63	Fuse Caution Label	RRW-111	RRW-111	Not used	Not used	Not used	Not used	Not used	
NSP	64	Transformer 1 PCB	RNZ3046	RNZ3046	RNZ3041	RNZ3041	RNZ3041	Not used	Not used	
NSP	64	Transformer 1 Unit	Not used	Not used	Not used	Not used	Not used	RWZ3731	RWZ3731	
⚠	75	Line Voltage Selector (AC110/120–127/220/230–240V)	Not used	Not used	Not used	Not used	Not used	RSB1022	RSB1022	
	76	Insulator (Foot)	Not used	Not used	PNW1912	PNW1912	Not used	Not used	Not used	
	77	LED Lens Cover	Not used	Not used	RNK2206	RNK2206	Not used	Not used	Not used	
	78	Vinyl bag (115 x 270 x 0.05)	Not used	Not used	Z21-013	Not used	Not used	Not used	Not used	
	79	Spacer A	Not used	Not used	RHC1032	Not used	RHC1032	Not used	Not used	
	80	Spacer B	Not used	Not used	RHC1033	Not used	RHC1033	Not used	Not used	
	81	Caution Card	Not used	Not used	RRN1001	Not used	Not used	Not used	Not used	
	82	Caution 220V label	Not used	Not used	Not used	Not used	Not used	ARR1003	ARR1003	
⚠	83	Fuse (T5A)	Not used	Not used	PEK1003	Not used	Not used	Not used	Not used	

• Parts List for KUXJ type

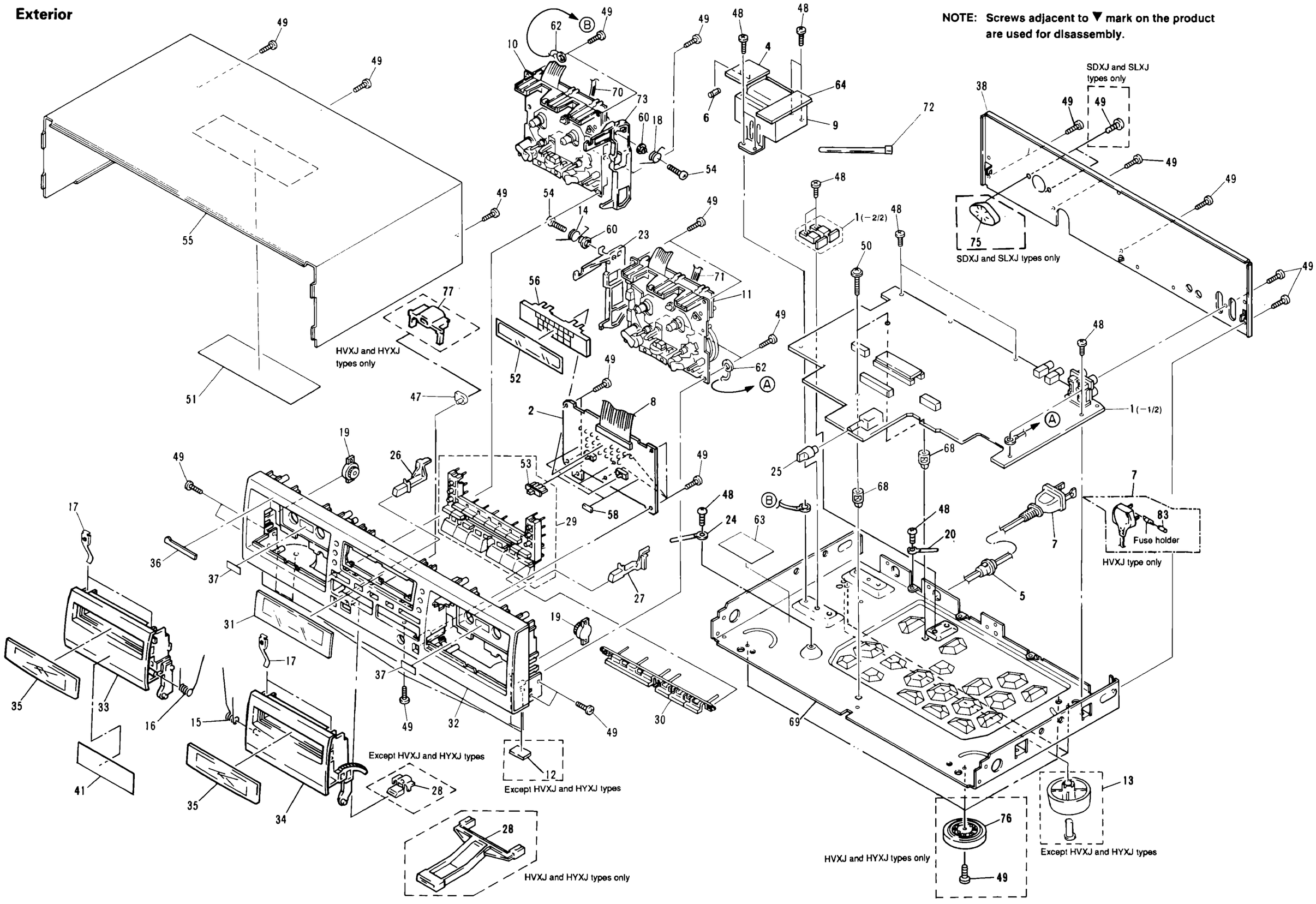
Mark	No.	Description	Parts No.
	1	Main Unit	RWZ3930
	2	Sub Unit	RWZ3931
	3	.....	
NSP	4	Transformer 2 Unit	RWZ3872
⚠	5	Strain Relief	CM-22C
⚠	6	Fuse (FU1, FU2, 1.25A)	REK1076
⚠	7	AC Power Cord	PDG1015
	8	Lead Card 18P	RDD1355
⚠	9	Power Transformer	RTT1311
	10	1 Mechanism Unit	RYM1237
	11	2 Mechanism Unit	RYM1238
	12	Rubber Sheet	AEB1111
	13	Foot Assy	AEC1531
	14	Eject Spring L	RBH1379
	15	Door Spring L	RBH1304
	16	Door Spring R	RBH1305
	17	Half Pressure Spring	RBK1004
	18	Eject Spring R	RBH1380
	19	Damper Assy	REC1267
NSP	20	Cord clamper	RNH1005
	21	.....	
	22	.....	
	23	Eject Lever L	RNK2203
	24	Cord Clamper	RNH-184
	25	Balance Knob	RAC1705
	26	Eject Konb L	RAC1881
	27	Eject Konb R	RAC1882
	28	Power Knob	RAC1883
	29	Control Knob	RAC1919
	30	REC Knob B	RAC1788
	31	Meter Lens	RAH2705
	32	Front Panel	RAH2704
	33	Door Pocket L	RAH2690
	34	Door Pocket R	RAH2691
	35	Door Lens	RAH2687
	36	Name Plate	RAM1007
	37	Remain Display Paper	REE-113
	38	Rear Panel	RNA2050
	39	Connection Cord with Mini Plug	PDE1267
	40	Connection Cord Assy	RDE1036
	41	Getter (PVC)	RAX1051
	42	Operating Instructions (English)	RRB1169
	43	Pad	RHA1115
	44	Pad R	RHA1116
	45	Packing Case	RHG1717
	46	Sheet	Z23-007
	47	LED Lens	PNW2019
	48	Screw	BBZ30P060FMC
	49	Screw	BBZ30P080FZK
	50	Screw	IBZ30P150FCC
	51	65 Label	ORW1069
	52	Meter Panel	RAH2702
	53	Slide Knob	REA1078
	54	Screw	BSZ26P120FMC
	55	Bonnet	REA1077
	56	LED holder	RNK2194
	57	.....	
	58	Knob spacer	REC1195
	59	.....	
	60	Eject Collar	RLA1283
	61	.....	
NSP	62	Earth Lead Unit	DE015VF0
NSP	63	Fuse Caution Label	RRW-111
NSP	64	Transformer 1 PCB	RNZ3046
	65	.....	
	66	.....	
	67	.....	
NSP	68	PCB Spacer	PNY-404
NSP	69	Chassis	RNB1100
	70	Connector Assy 3P	RKP1678
	71	Connector Assy 5P	RKP1677
NSP	72	Binder	ZCA-T18S
	73	Eject Lever R	RNK2202

Packing

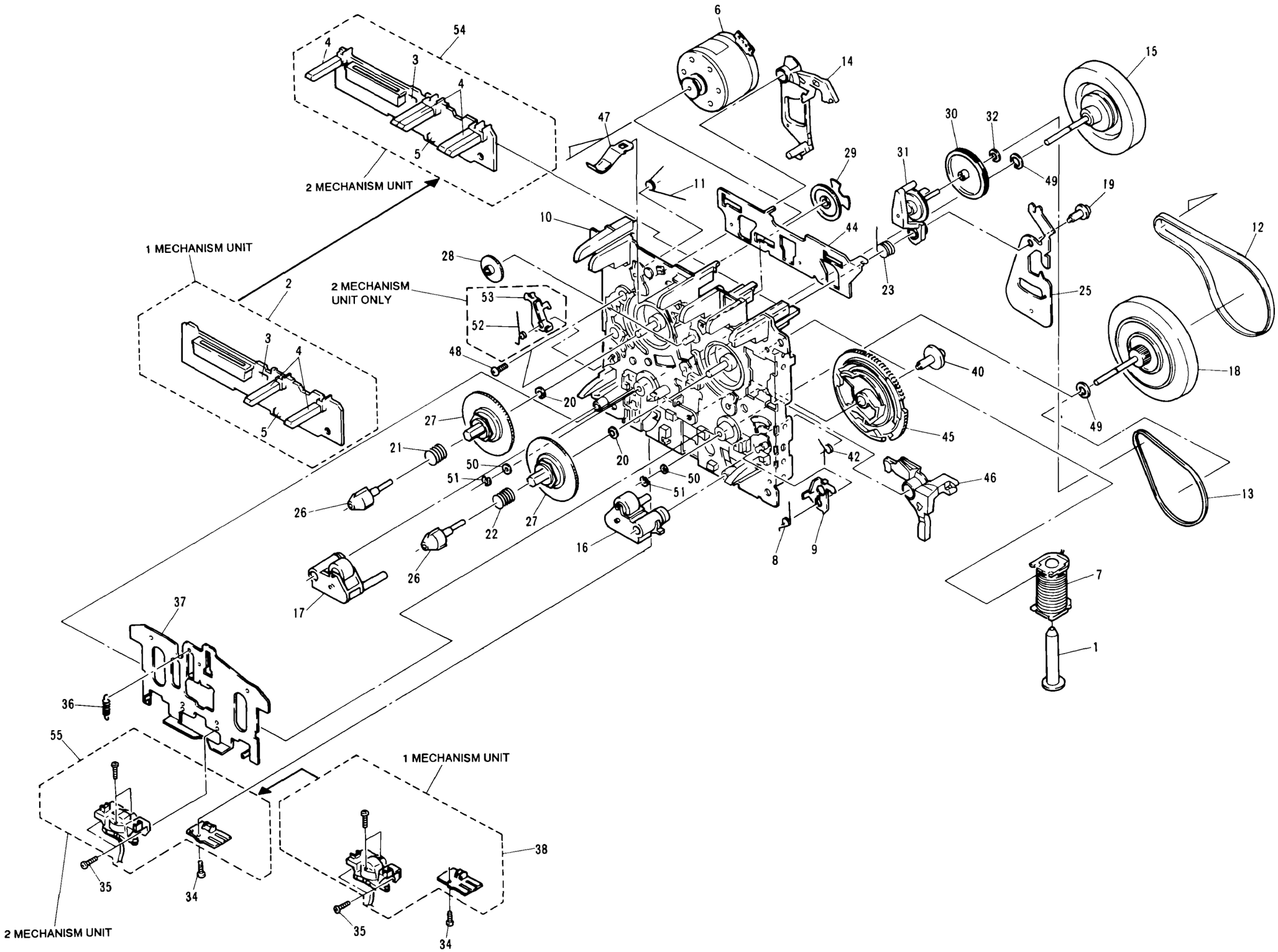


Exterior

NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.


HVXJ and HYXJ types only
SDXJ and SLXJ types only
SDXJ and SLXJ types only
Except HVXJ and HYXJ types
Except HVXJ and HYXJ types
Except HVXJ and HYXJ types
HVXJ and HYXJ types only
HVXJ and HYXJ types only
Fuse holder
HVXJ type only

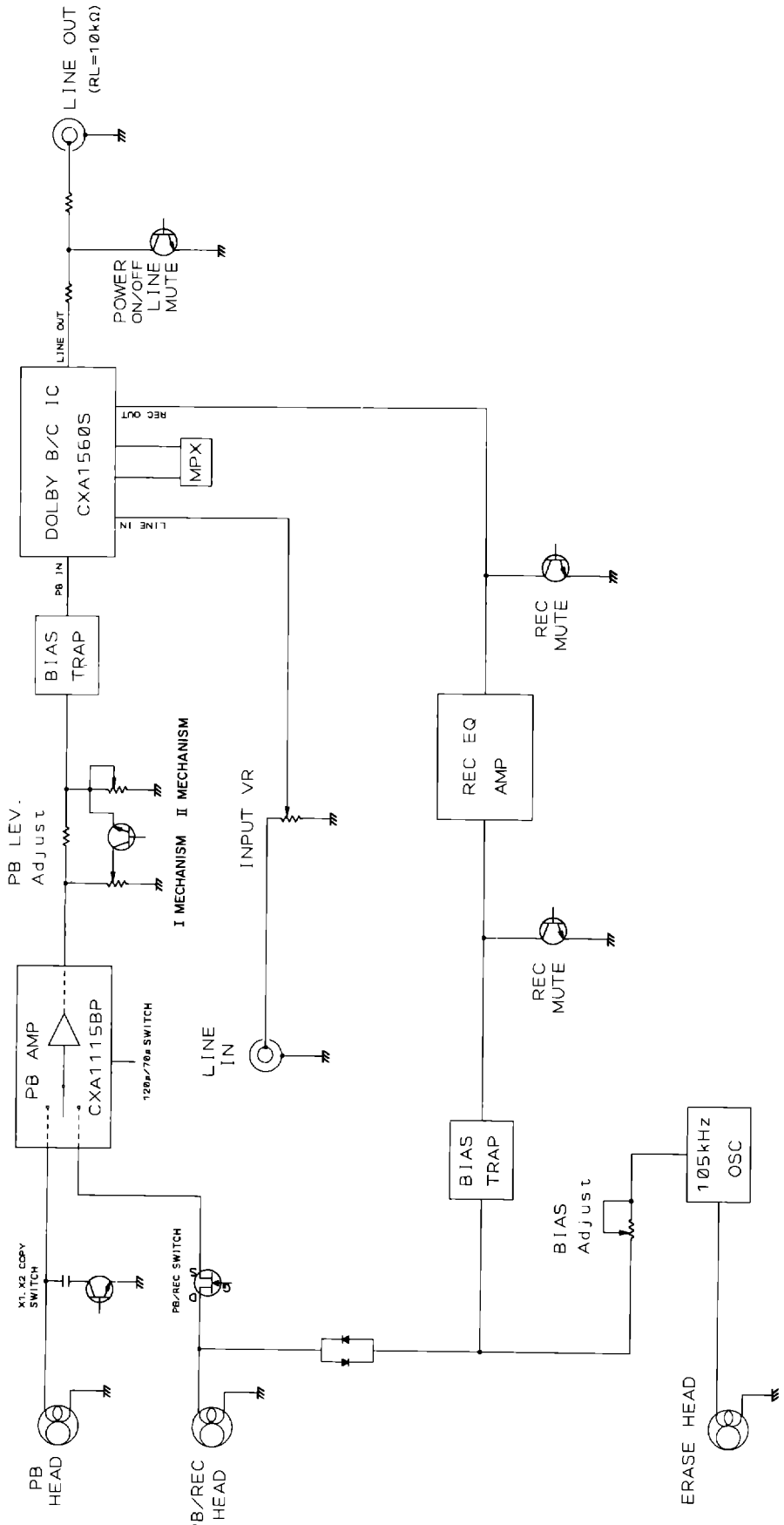
2. 1 MECHANISM UNIT AND 2 MECHANISM UNIT



Parts List

Mark	No.	Description	Part No.
	1	PLUNGER	RLA1288
	2	PCB CONTROL BLK (1 MECHANISM UNIT)	RXA1623
	3	PUSH SWITCH	RSG1018
	4	SPLF	RSN1023
	5	PHOTO – TRANSISTOR	SPI33534FG
	6	MTR MAIN BLK	RXM1081
	7	SOLENOID BLK	RXP1021
	8	SPRING INTERLOCK R	RBH1386
	9	ARM INTERLOCK R	RNE1781
	10	CHASSIS BASE BLK	RXA1626
	11	SPRING BRAKE	RBH1387
	12	MAIN BELT	REB1157
	13	F/R BELT	REB1254
	14	LEVER BRAKE	RNK2071
	15	F/W ASSY	RXA1295
	16	PINCH ROLLER BLK R	RXA1628
	17	PINCH ROLLER BLK L	RXA1629
	18	CLUTCH BLK ASSY	RXA1631
	19	SCREW	RBA1120
	20	WASHER	W41D065D025
	21	SPRING REEL (L)	RBH1388
	22	SPRING REEL (R)	RBH1389
	23	CAM SPRING	RBH1393
	24	.....	
	25	LEVER F/R	RNE1782
	26	REEL FEATHER	RNK2072
	27	REEL BASE	RNK2073
	28	PLAY GEAR (A)	RNK2074
	29	FF GEAR (A)	RNK2075
	30	F/R PULLEY	RNK2076
	31	CLUTCH BLK ASSY	RXA1632
	32	WASHER	WA17D040D025
	33	.....	
	34	SCREW	PCZ20P040FMC
	35	SCREW	PMZ20P060FMC
	36	SPRING HB	RBH1390
	37	HEAD BASE	RNE1783
	38	PLATE HD BLK (1 MECHANISM UNIT)	RXA1682
	39	.....	
	40	SCREW	RBA1121
	41	.....	
	42	SPRING ARM PLAY	RBH1392
	43	.....	
	44	PLATE SLIDE	RNE1785
	45	CAM GEAR	RNK2078
	46	ARM PLAY	RNK2079
	47	SPRING CASSETTE	RNE1786
	48	SCREW	BMZ26P040FZK
	49	WASHER	WA26D045D025
	50	WASHER	WA26D047D050
	51	STOP RING	YE15FUC
	52	SPRING INTERLOCK L (2 MECHANISM UNIT ONLY)	RBH1385
	53	ARM INTERLOCK L (2 MECHANISM UNIT ONLY)	RNE1780
	54	PCB CONTROL BLK (2 MECHANISM UNIT)	RXA1733
	55	PLATE HD BLK (2 MECHANISM UNIT)	RXA1683

3. BLOCK DIAGRAM



4. TEST MODE

4.1 Entering the Test Mode

STOP Mode

• Press the STOP key of deck I, MUTE, and PAUSE keys of deck II simultaneously to enter the test mode.

4.2 Exiting the Test Mode

• Press the STOP keys of deck 1 and deck 2 together. (Because the RESET key is not provided for this unit)
• Inputting the STANDBY Key (If the STANDBY key is available)
• Power OFF

The test mode can be exited by any one of the above.

4.3 Main Test Mode Items

• SW Check

4.3.1 SW Operation Check

SW operations are as follows in the test mode.

Display	Input Key	Check
-∞ goes off	All keys except REWIND AUTO PLAY	• In this mode, the mechanism operates without the half. • SW check When the switch is pressed, the level meter lights up or blinks as shown in Table 1, enabling switch operations to be checked.

Table 1

Meter	–15	–8	–3	0	+3
L ch	When DOLBY NR is set to B : Blinks quickly C : Blinks slowly		Lights up when the half switch of deck I is pressed.	Lights up when the CrO2 switch of deck I is pressed.	When the REV mode is set to ⇄ : Blinks quickly ↻ : Blinks slowly
R ch	Lights up when forward recording inhibit switch of deck II is pressed.	Lights up when the metal switch of deck II is pressed.	Lights up when the half switch of deck II is pressed.	Lights up when the CrO2 switch of deck II is pressed.	Lights up when reverse recording inhibit switch of deck II is pressed.

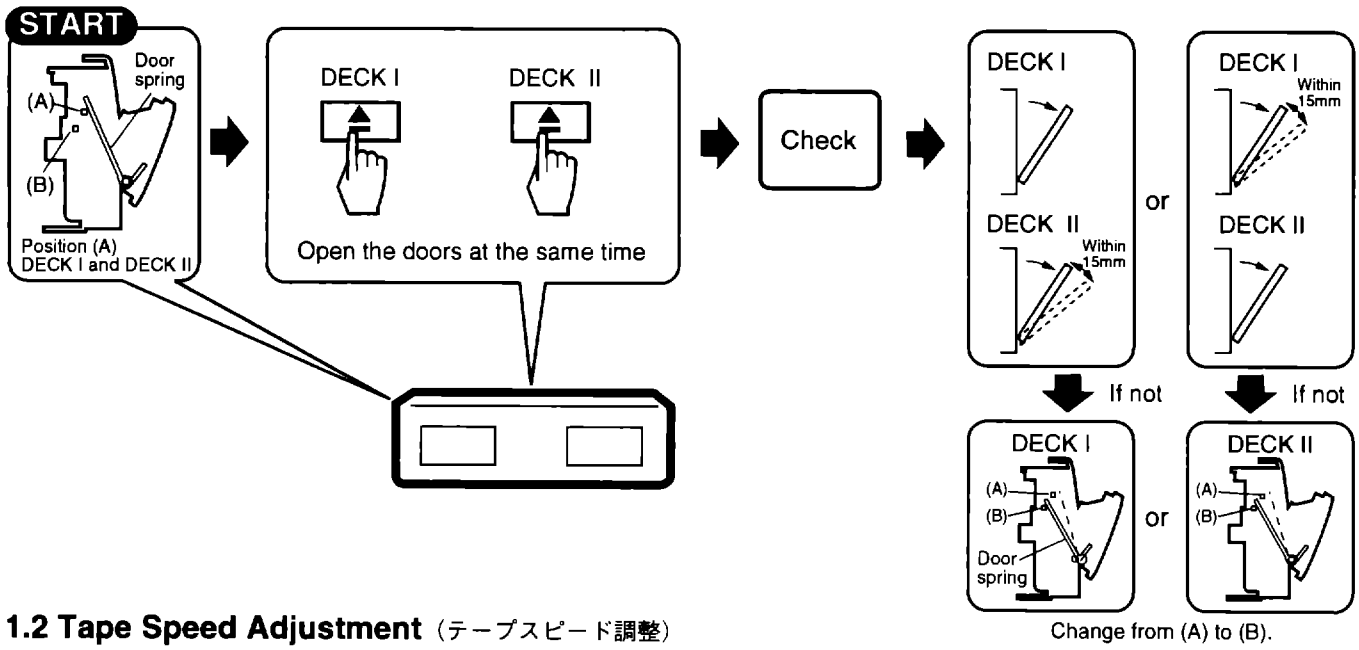
4.3.2 x2 Speed Check

In the test mode, play the unit and complete assist operations (to stabilize mechanism operations), and then press ff or rew to set x2 speed play.
Press PLAY again to set normal speed play.

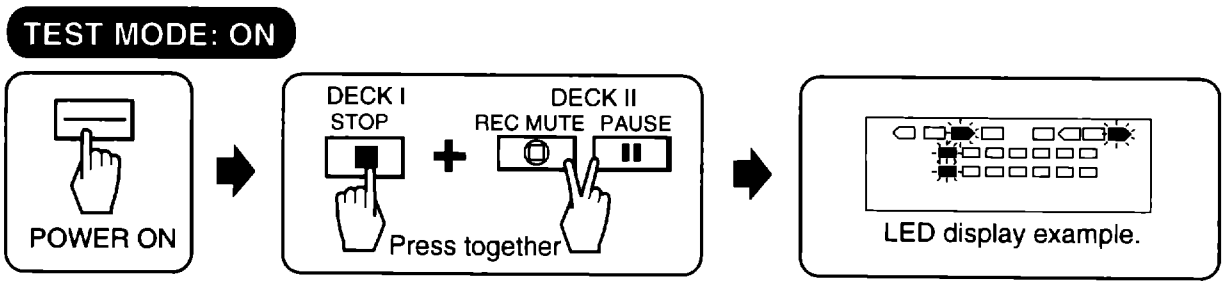
5. ADJUSTMENTS (調整方法)

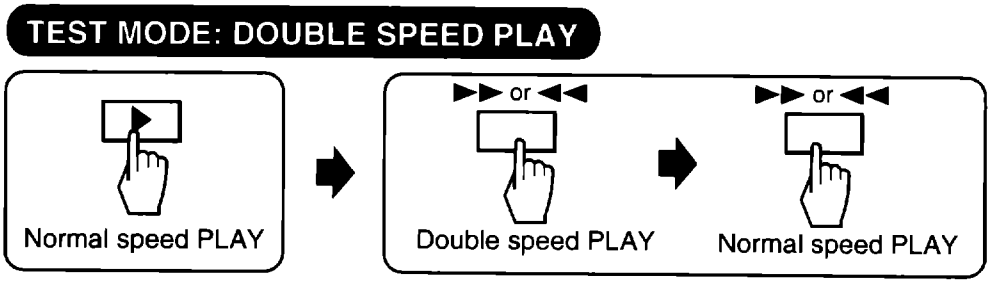
1. MECHANICAL ADJUSTMENT (機構系の調整)

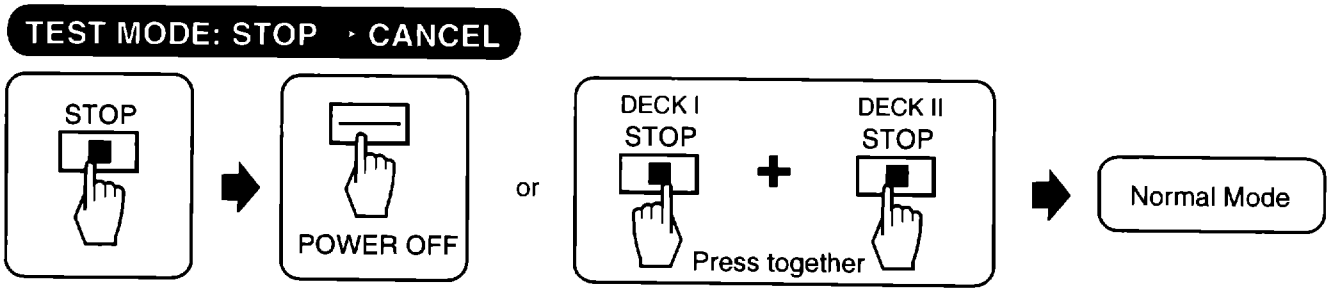
1.1 Door Damping Check and Adjustment (ドアダンプ確認および調整)



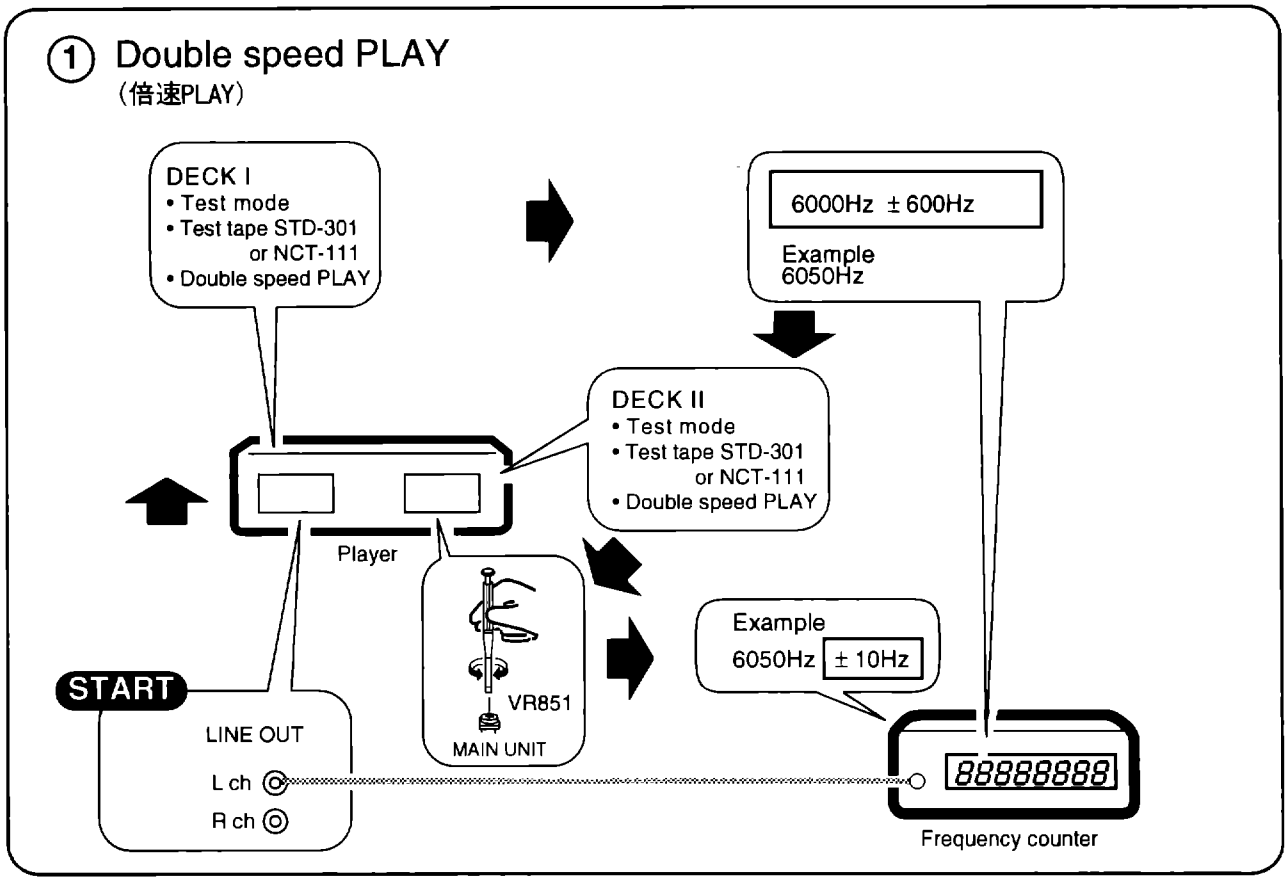
1.2 Tape Speed Adjustment (テープスピード調整)



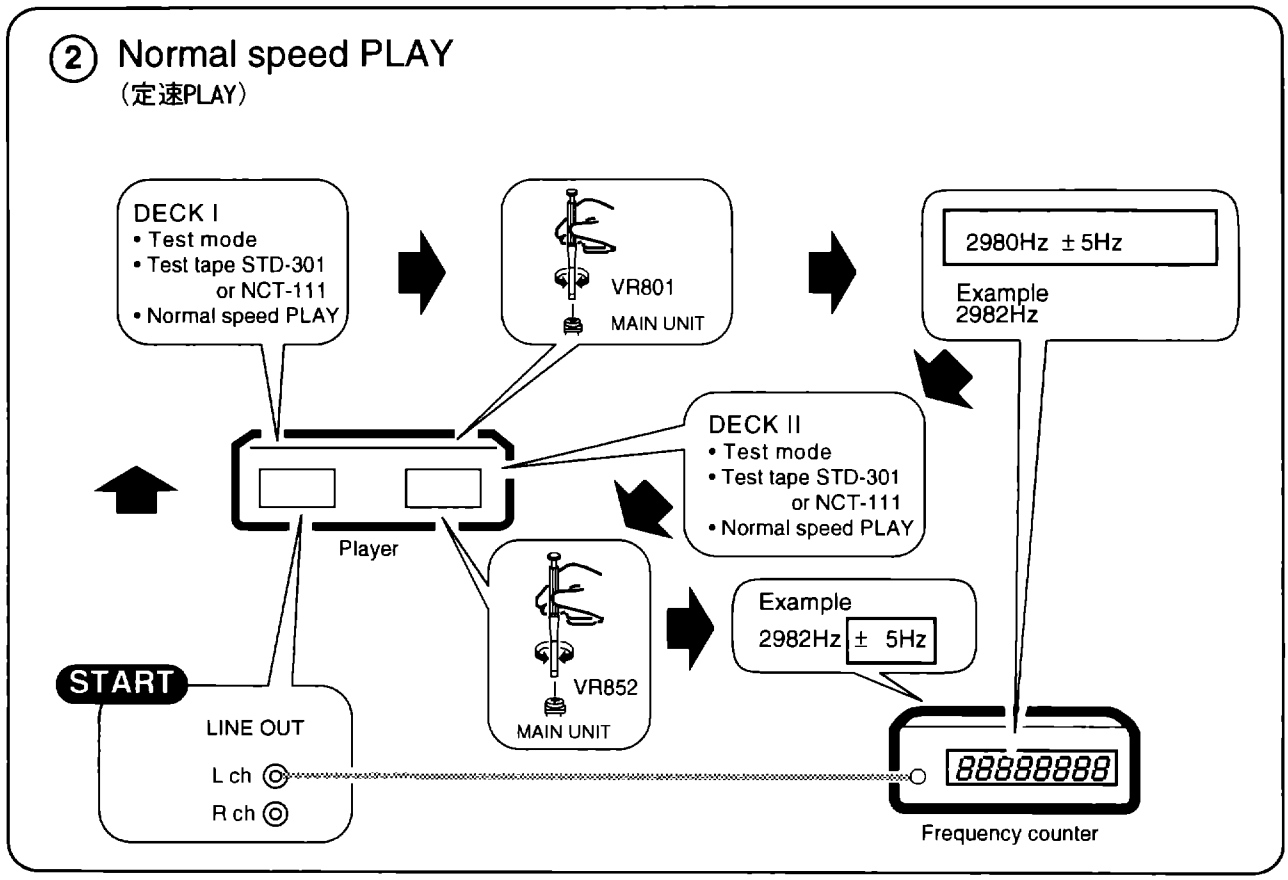




① Double speed PLAY
（倍速PLAY）



② Normal speed PLAY
（定速PLAY）



2. ELECTRICAL ADJUSTMENT (電気系の調整)

Adjustment Conditions (調整条件)

1. The mechanical adjustments must be completed first.
   (メカ系の調整が完了していること。)
2. The head must be cleaned and demagnetized.
   (ヘッドの清掃と消磁が行われていること。)
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
   (調整の前に、セットを数分間エージングすること。)
4. The reference signal is 0 dBV=1Vrms.
   (信号レベルは、0dBV=1Vrmsとする。)
5. Connect a 10 kΩ load resistance to the OUTPUT terminals.
   (ライン出力端子に10kΩの負荷抵抗を接続する。)
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   (特に指定のない場合は全てDOLBY NRスイッチOFFとする。)
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

NOTE : This unit has an automatic tape selection feature.

オートテープセレクター機構付です

Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen. "DOLBY", the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

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ドルビー,DOLBY,ダブルD記号及びHX PROはドルビーラボラトリーズライセンシングコーポレーションの商標です。

* As the reference recording level is 250 nwb/m for STD-331E, the recording level will be higher by 4 dB for STD-331B (160 nwb/m). When adjusting, pay carefull attention to the type of tape used.

※ STD-331Eは、基準録音レベルが250nwb/mとなっており、STD-331B (160nwb/m) に対して、4dB録音レベルが高くなっています。調整時には、テープの種類に十分注意して下さい。

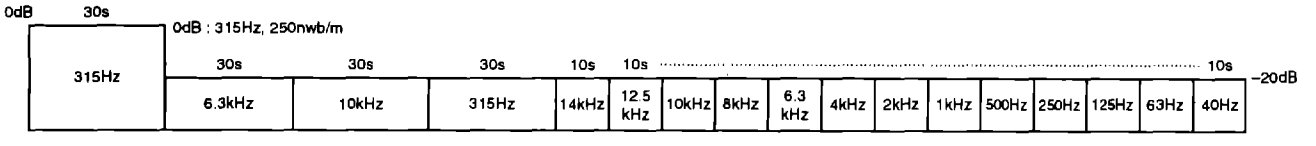
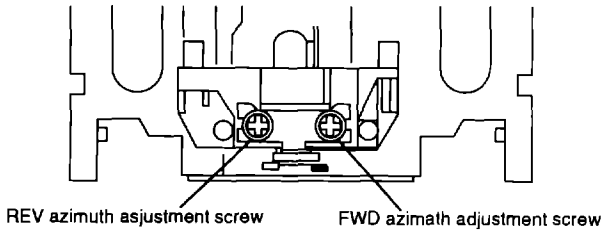


Fig. 1 Test tape STD-331E

DECK I



DECK II

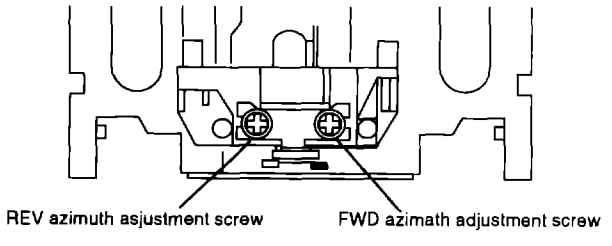
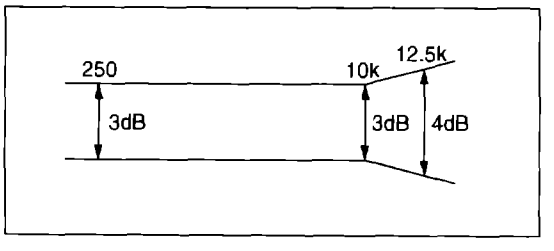


Fig.2 Head azimuth adjustment

PLAY BACK



RECORDING

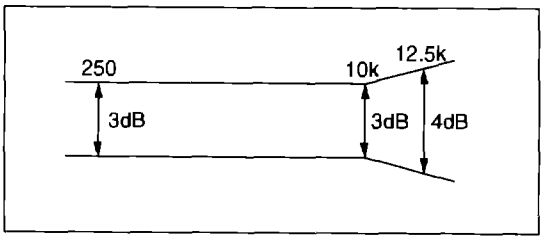
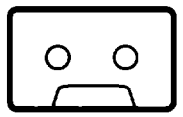
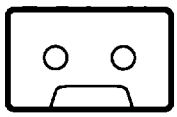
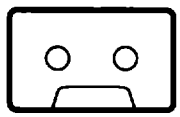
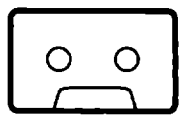
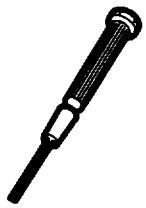
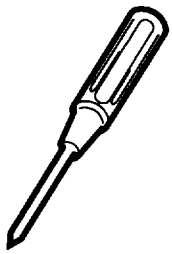
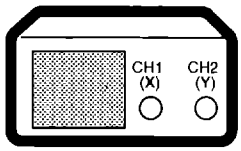
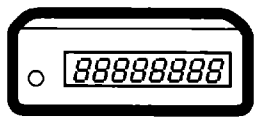
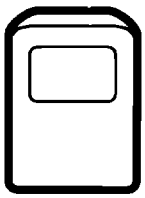
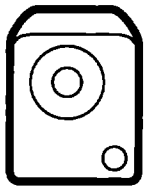
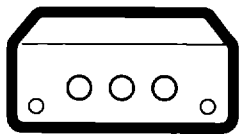


Fig.3 Frequency response zone

JIGS AND MEASURING INSTRUMENTS (調整に必要な治工具類)

 Test tape (STD-331E)	 Test tape (STD-631 or STD-632) (Normal blank tape)	 Test tape (STD-622) (CrO_2 blank tape)	 Test tape (STD-611) (Metal blank tape)
⊖ Screwdriver (medium)	⊖ Screwdriver (small)	 ⊖ Precise screwdriver	⊕ Screwdriver (medium)
 ⊕ Screwdriver (large)	 Dual-trace oscilloscope	 Frequency counter	10kΩ Load resistance
 AC millivoltmeter	 Low-frequency oscillator	 Attenuator	

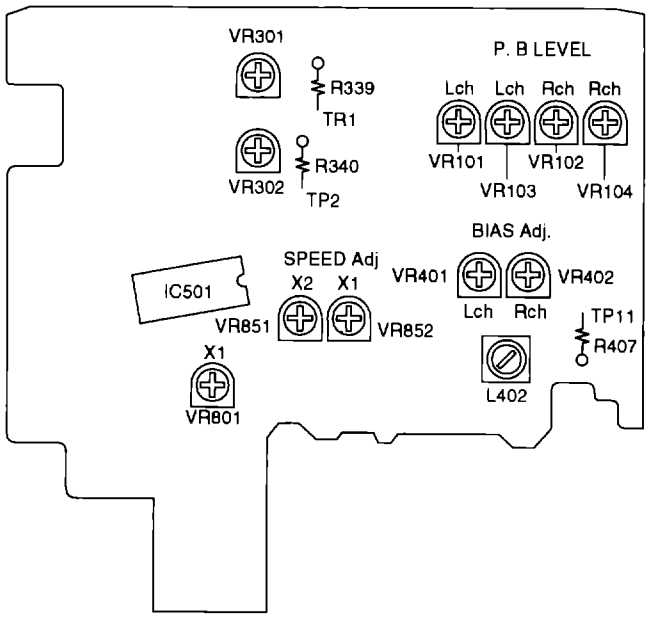
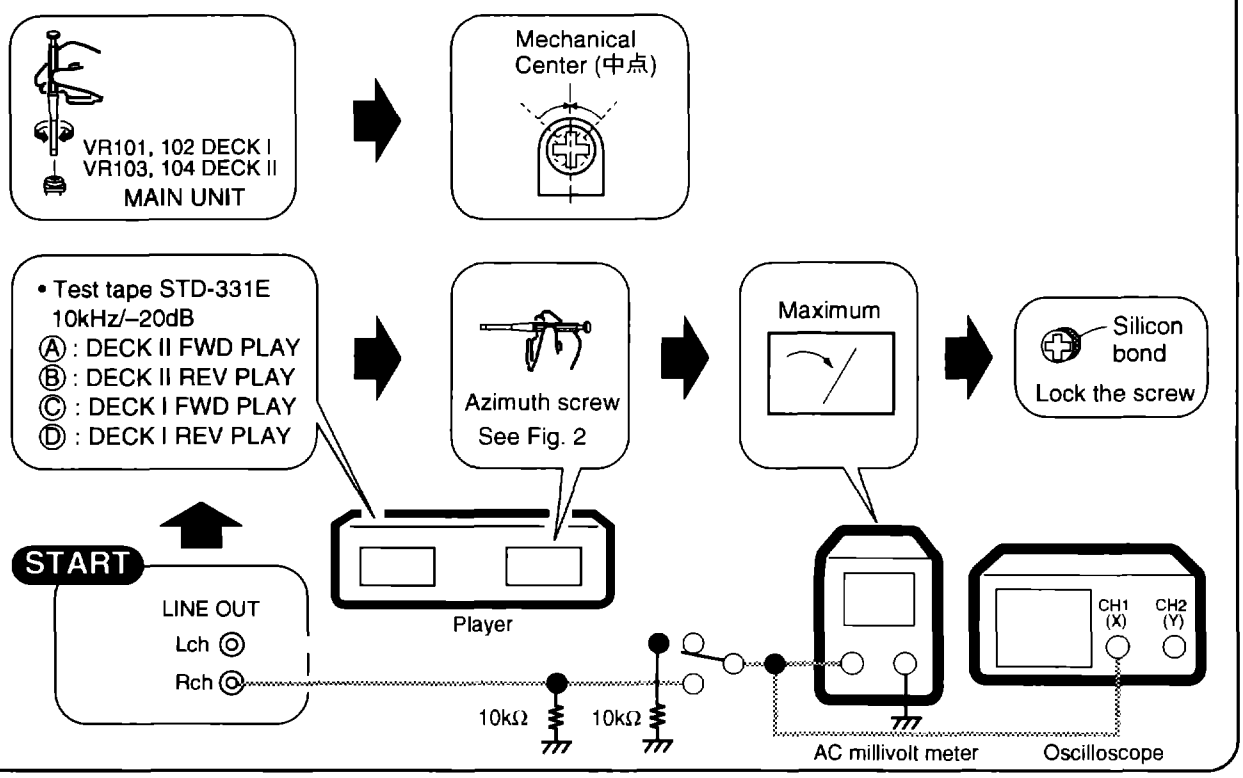


Fig.4 Adjustment points

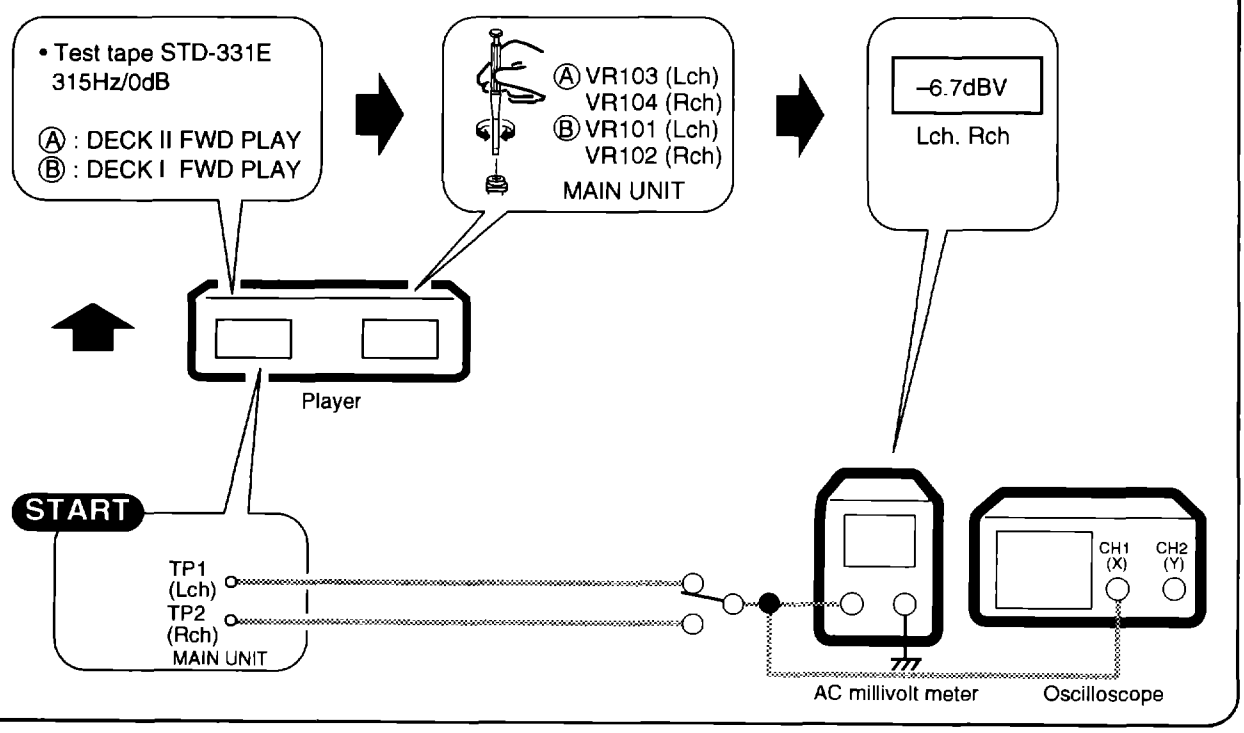
2.1 Playback Section (再生系)

① Head Azimuth Adjustment (ヘッド角度調整)



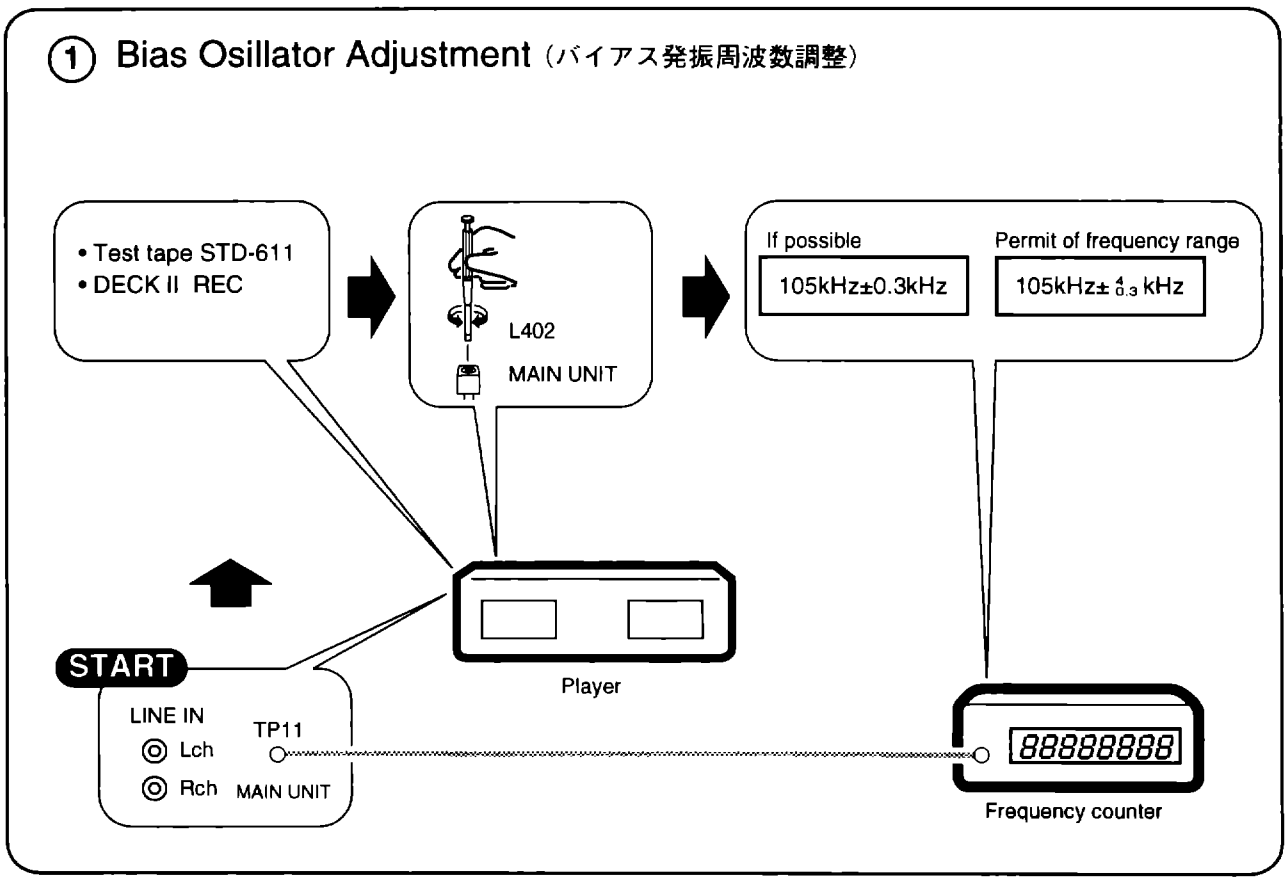
② Playback Level Adjustment (再生レベル調整)

• This adjustment determines the DOLBY NR level, and must be performed with great care.
(ドルビーレベル設定となるため、確実に行うこと。)

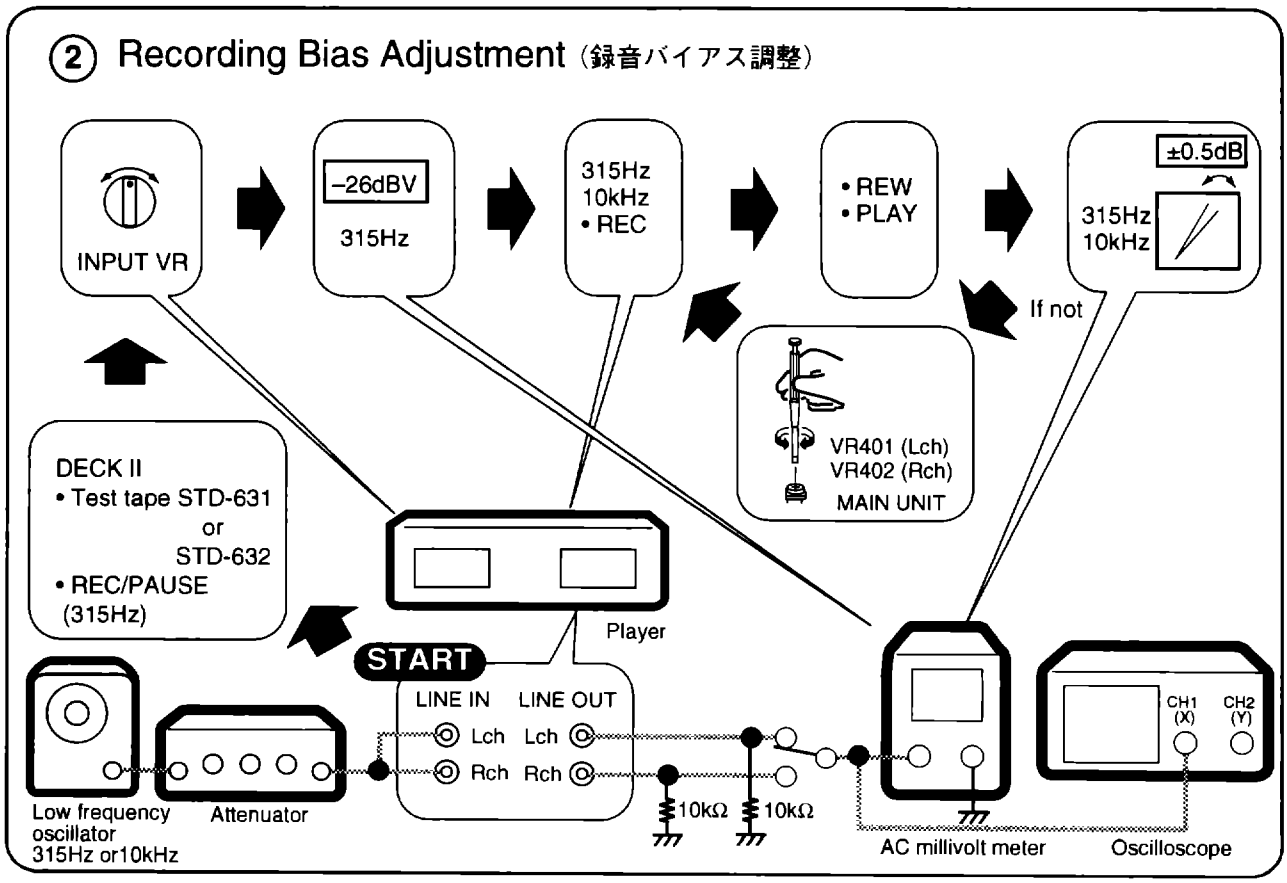


2.2 Recording Section (録音系)

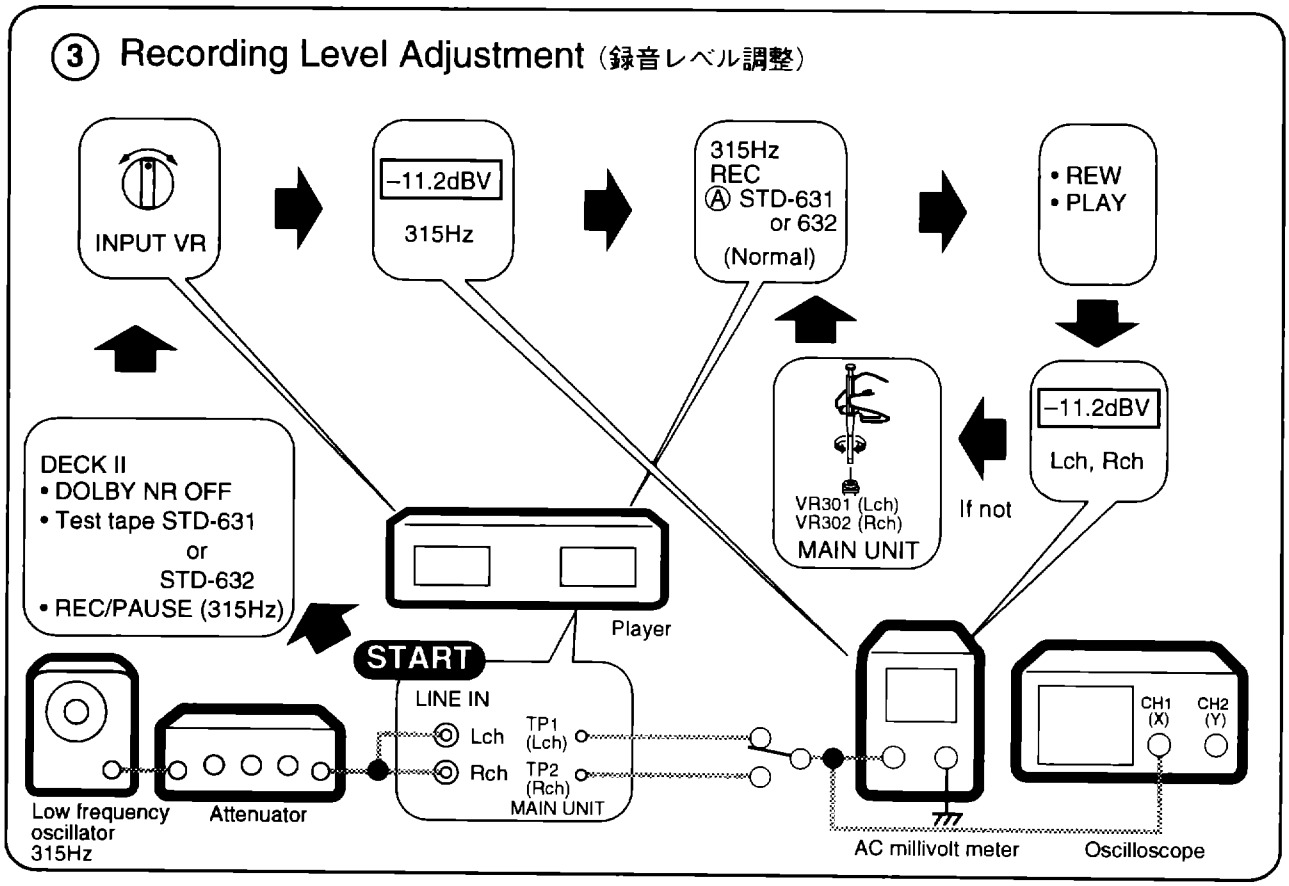
① Bias Osillator Adjustment (バイアス発振周波数調整)



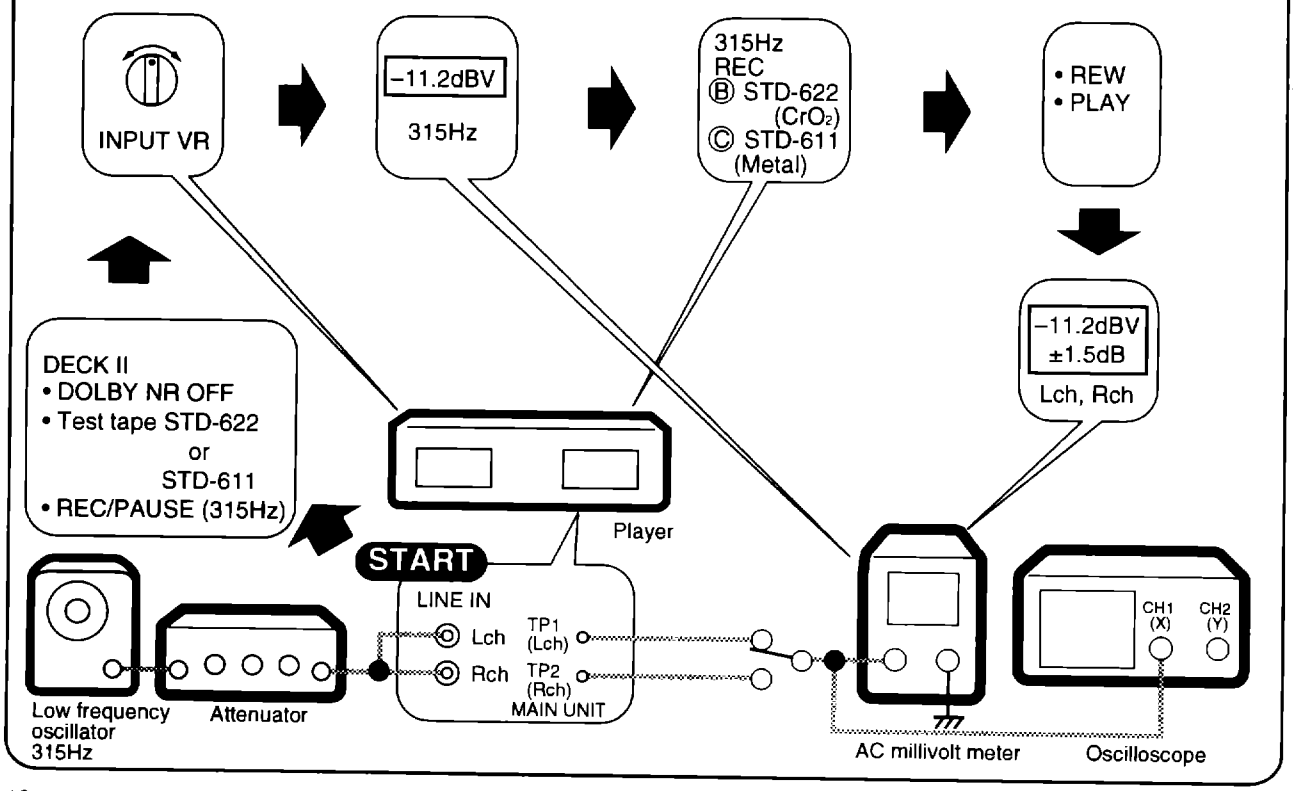
② Recording Bias Adjustment (録音バイアス調整)



③ Recording Level Adjustment (録音レベル調整)



④ Recording Level Check (録音レベル確認)



6. SCHEMATIC DIAGRAMS

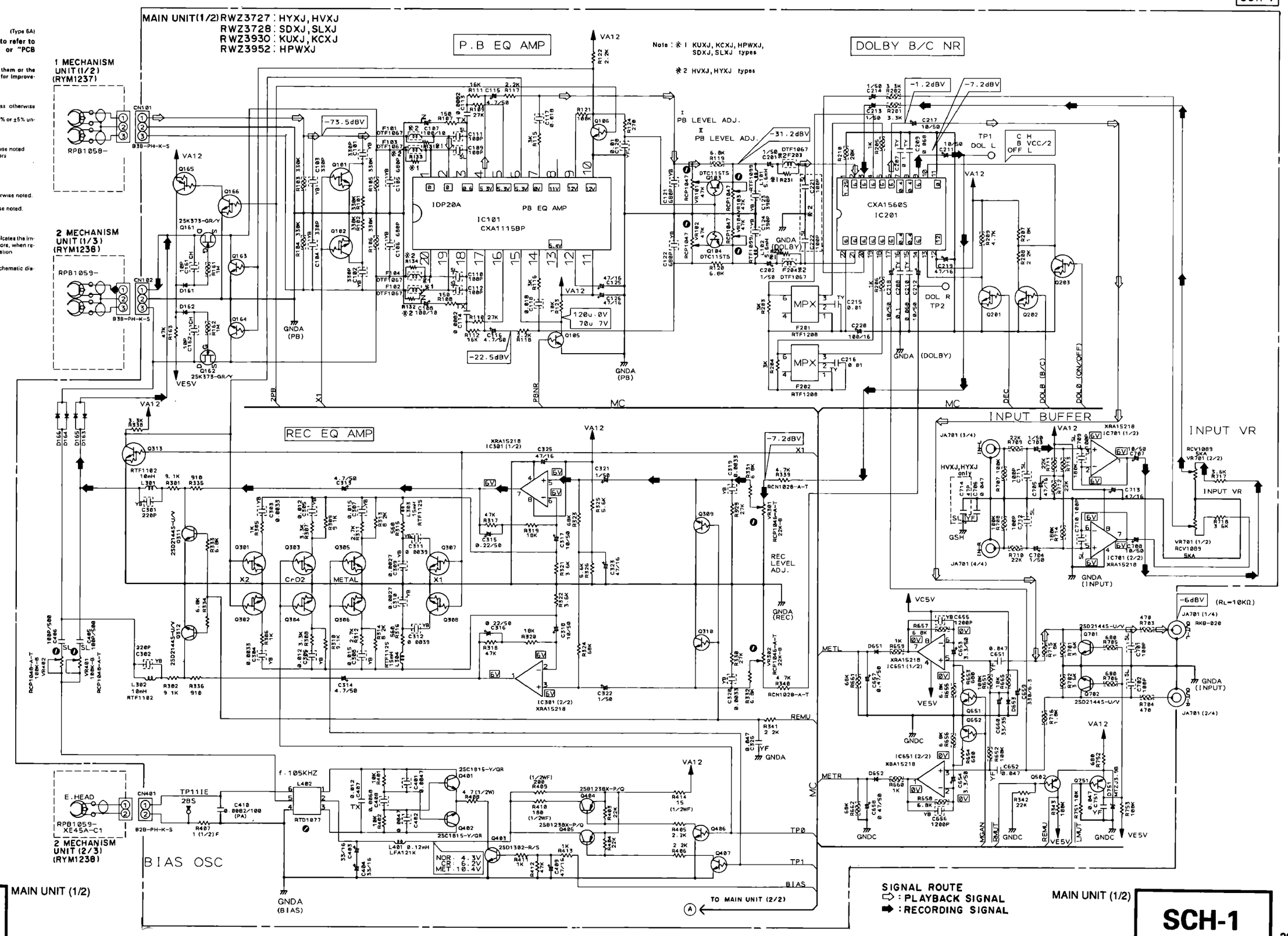
6.1 MAIN UNIT (1/2)

SCH-1

NOTE FOR SCHEMATIC DIAGRAMS (Type 6A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k kΩ, M:MΩ, or Ω unless otherwise noted
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted
   Tolerance. (F): ±1%, (G). ±2%, (K) ±10%, (M) ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted
   Rated voltage 50V except for electrolytic capacitors
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ⊏ or ← V
   DC voltage (V) in STOP mode unless otherwise noted.
   ⇨ mA or ← mA
   DC current in STOP mode unless otherwise noted.
7. **OTHERS:**
   - ⌀ or ● : Adjusting point
   - ◁ : Measurement point
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation
8. **SCH-□ ON THE SCHEMATIC DIAGRAM:**
   - SCH-□ indicates the drawing number of the schematic diagram (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

SUB UNIT
S1601 : POWER (▩STANDBY, ▬ON)
S1602 : COPY NORMAL
S1603 : COPY HIGH
S1604 : DECK II MS +
S1605 : DECK II MS –
S1606 : REWIND AUTO PLAY 2
S1607 : DECK I MS –
S1609 : ■ STOP 2
S1610 : ⏻ MUTE 2
S1611 : ► FWD 2
S1612 : ◄ REV 2
S1613 : ►► FF 2
S1614 : ◄◄ REW 2
S1615 : ❚❚ PAUSE
S1616 REWIND AUTO PLAY 1
S1617 : ■ STOP 1
S1618 : ● REC 2
S1619 : ► FWD 1
S1620 : ◄ REV 1
S1621 : ►► FF 1
S1622 : ◄◄ REW 1
S1624 DECK I MS +
S1625 DLOBY NR (B-OFF-C)
S1626 ⊐/⊏ REV MODE (RELAY/SKIP)



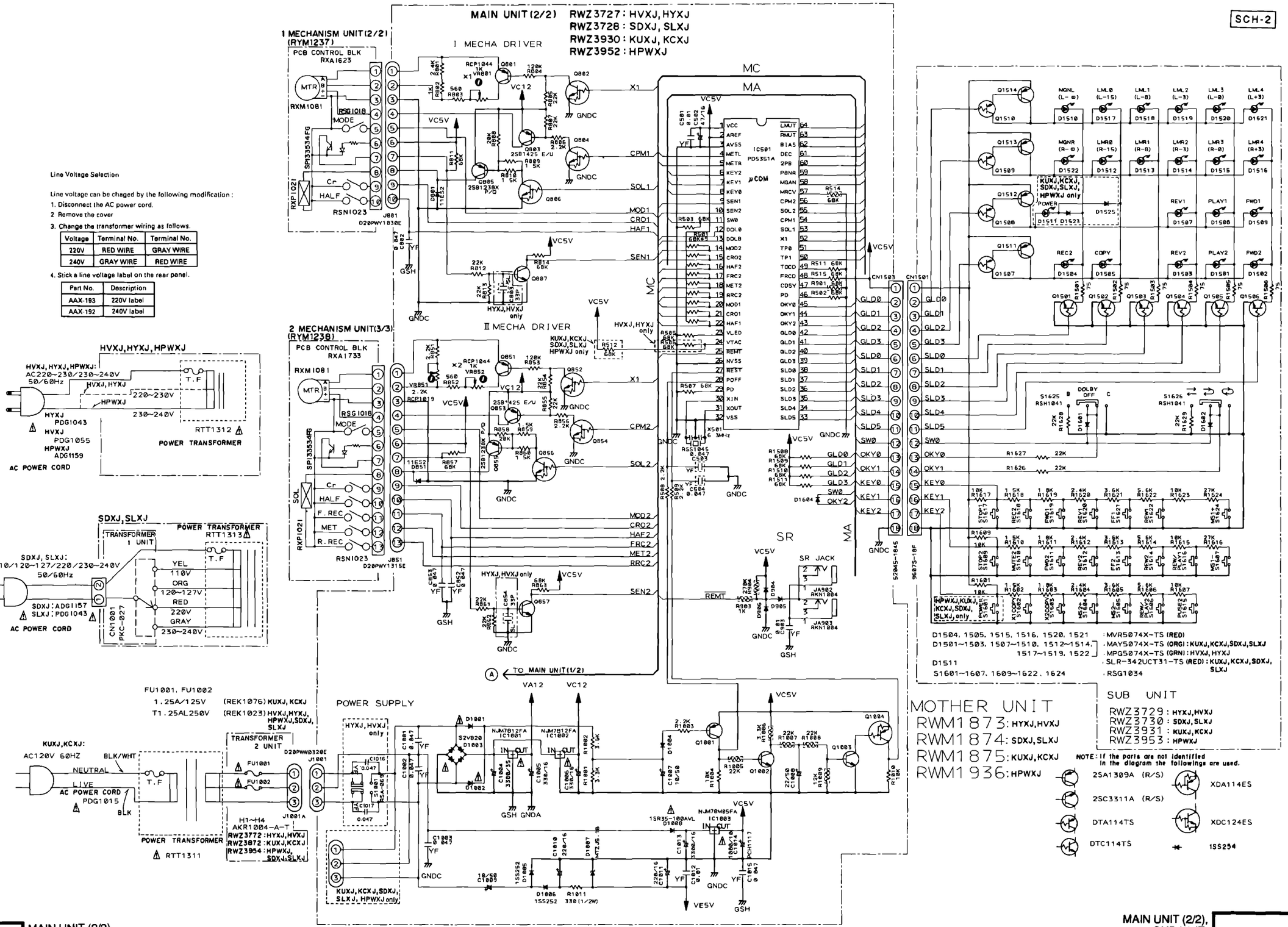
MAIN UNIT (1/2)

SCH-1

MAIN UNIT (1/2)

SCH-1

6.2 MAIN (2/2), SUB AND TRANSFORMER 2 UNIT



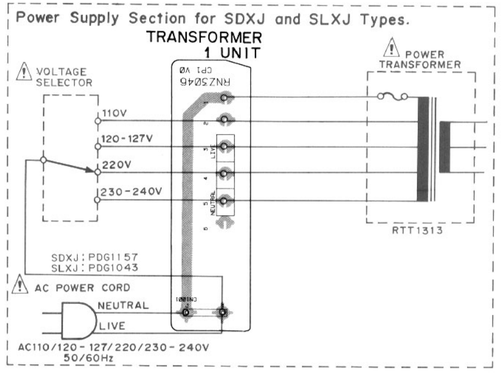
SCH-2 MAIN UNIT (2/2), SUB UNIT, TRANSFORMER 2 UNIT

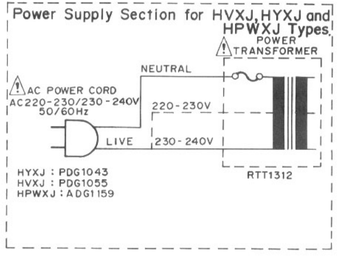
MAIN UNIT (2/2), SUB UNIT, TRANSFORMER 2 UNIT SCH-2

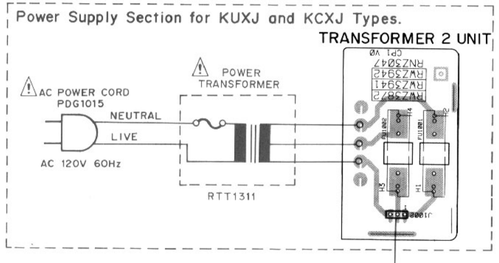
7. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS:
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

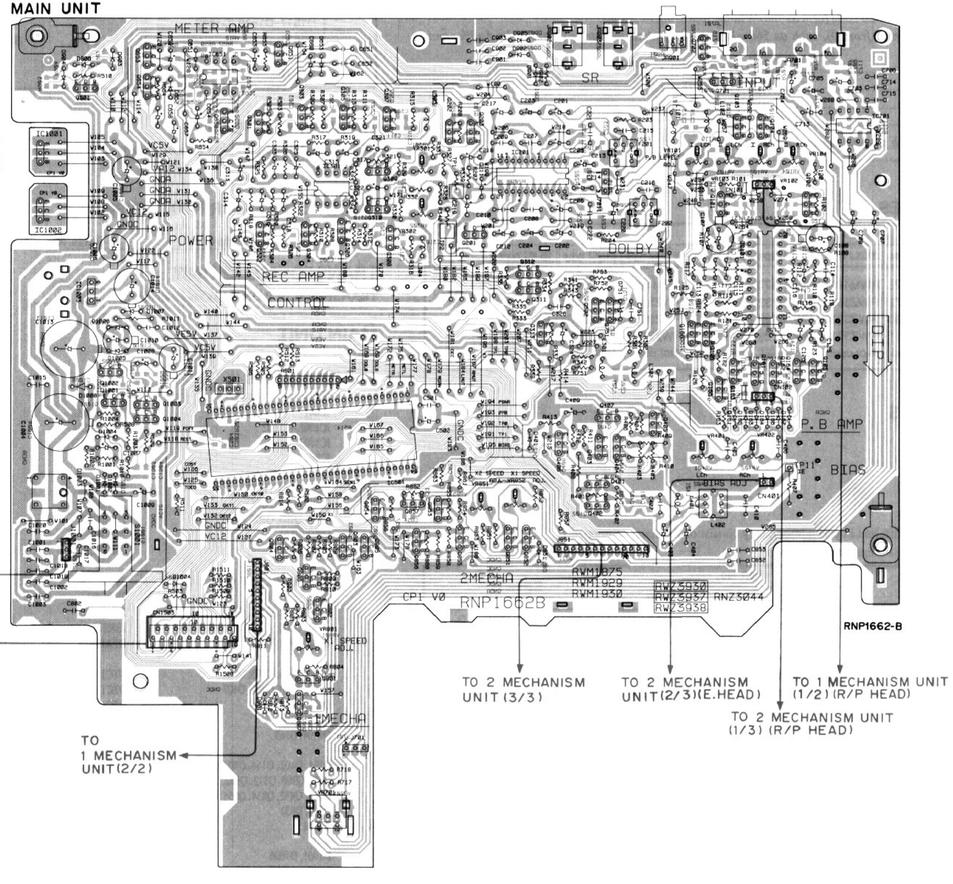
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

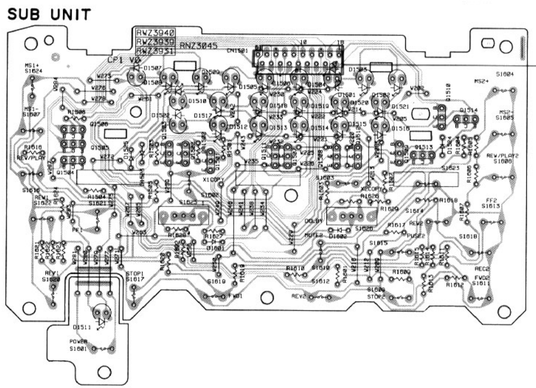






- **This diagram is viewed from the mounted parts side.**
- The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.





8. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47K ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ..... RD1/4PU 5 6 1 J
47 kΩ → 47 × 10³ → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → 0R5 ..... RN2H 0 R 5 K
1 Ω → 1R0 ..... RS1P 1 R 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62 kΩ → 562 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F

■ LIST OF WHOLE PCB ASSEMBLIES

Mark	PCB Assemblies	Part No.							Remarks
		KUXJ type	KCXJ type	HVXJ type	HYXJ type	HPWXJ type	SDXJ type	SLXJ type	
NSP	MOTHER UNIT	RWM1875	RWM1875	RWM1873	RWM1873	RWM1936	RWM1874	RWM1874	
NSP	├─TRANSFORMER 2 UNIT	RWZ3872	RWZ3872	RWZ3732	RWZ3732	RWZ3954	RWZ3954	RWZ3954	
	├─MAIN UNIT	RWZ3930	RWZ3930	RWZ3727	RWZ3727	RWZ3952	RWZ3728	RWZ3728	
	├─SUB UNIT	RWZ3931	RWZ3931	RWZ3729	RWZ3729	RWZ3953	RWZ3730	RWZ3730	
NSP	└─TRANSFORMER 1 UNIT	Not used	Not used	Not used	Not used	Not used	RWZ3731	RWZ3731	

■ CONTRAST OF PCB ASSEMBLIES

TRANSFORMER 2 UNIT

TRANSFORMER 2 UNIT has no service part.

MAIN UNIT

- Although RWZ3930, RWZ3952 and RWZ3728 are different in part number, they consist of the same components.
- RWZ3930 and RWZ3727 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3930	RWZ3727	
	F101–F104, F203, F204	Not used	DTF1067	
	S1001	Not used	RSA-069	
	C221, C222	Not used	CCCSL101J50	
	C714	Not used	CCCSL470J50	
	C803, C854	Not used	CCSQSL330J50	
	C1016, C1017	Not used	CKCYF473Z50	
	R131–R134, R231, R232	RS1/10S000J	Not Used	
	R506	Not Used	RD1/6PM683J	
	R512	RD1/6PM683J	Not Used	

SUB UNIT

- Although RWZ3931, RWZ3953 and RWZ3730 are different in part number, they consist of the same components.
- RWZ3931 and RWZ3729 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3931	RWZ3729	
	D1501–D1503, D1507–D1510, D1512–D1514, D1517–D1519, D1522	MAY5074X	MPG5074X	
	D1511	SLR-342UCT31	Not Used	
	D1523, D1525	1SS254	Not Used	
	S1601	RSG1034	Not Used	

TRANSFORMER 1 UNIT

TRANSFORMER 1 UNIT has no service part.

■ PARTS LIST FOR KUXJ TYPE

Mark	No.	Description	Parts No.

TRANSFORMER 2 UNIT

TRANSFORMER 2 UNIT has no service part.

MAIN UNIT

SEMICONDUCTORS

	IC101		CXA1115BP
	IC201		CXA1560S
⚠	IC1001, IC1002		NJM7812FA
⚠	IC1003		NJM78M05FA
	IC501		PD5351A
	IC301, IC651, IC701		XRA15218
	Q1001, Q801, Q851		2SA1309A
	Q404, Q405, Q805, Q855		2SB1238X
	Q803, Q853		2SB1425
	Q401, Q402		2SC1815
	Q1002, Q1003, Q807, Q857		2SC3311A
	Q403		2SD1302
	Q311, Q312, Q701, Q702		2SD2144S
	Q161, Q162		2SK373
	Q502, Q751		DTA114TS
	Q105, Q106, Q163, Q164		DTC114TS
	Q309, Q310, Q406, Q407		DTC114TS
	Q651, Q652		DTC114TS
	Q103, Q104		DTC115TS
	Q1004, Q165		XDA114ES
	Q101, Q102, Q166, Q201-Q203		XDC124ES
	Q301-Q308, Q313, Q802, Q804		XDC124ES
	Q806, Q852, Q854, Q856		XDC124ES
	D801, D851		1IES2
⚠	D1008		1SR35-100AVL
⚠	D1005, D1006		1SS252
⚠	D1001, D1002, D1004		1SS254
	D1604, D161-D166, D651-D653		1SS254
	D904-D906		1SS254
	D751		MTZJ3.9B
⚠	D1007		MTZJ5.1B
⚠	D1003		S2VB20

COILS AND FILTERS

	L401		LFA121K
	L402		RTD1077
	L101, L102		RTF1099
	L301, L302		RTF1102
	L303, L304		RTF1125
	F201, F202		RTF1208

CAPACITORS

	C405, C406		CCCSL101K500
	C161, C162		CCSQCH100D50
	C109-C112, C701, C702		CCSQSL101J50
	C709-C712		CCSQSL101J50
	C803, C854		CCSQSL330J50
	C107, C108		CEANL101M10
	C201, C202, C213, C214		CEAS010M50
	C321, C322, C703, C704		CEAS010M50
	C1007, C1009, C211, C212		CEAS100M50
	C217, C218, C317, C318		CEAS100M50
	C707, C708		CEAS100M50
	C220		CEAS101M16
	C1008		CEAS220M50
	C1010, C1011		CEAS221M16
	C403, C404		CEAS330M16
	C660		CEAS330M35
	C1005, C1006		CEAS331M16
	C659		CEAS331M6R3
	C1013		CEAS332M16
	C1004		CEAS332M35
	C653, C654		CEAS3R3M50
	C125, C126, C219, C323, C325		CEAS470M16
	C409, C502, C705, C713		CEAS470M16
	C115, C116, C313, C314		CEAS4R7M50
	C315, C316		CEASR22M50

Mark	No.	Description	Parts No.
	C657, C658		CEASR47M50
	C407		CFTXA123J50
	C113, C114		CFTXA822J50
	C215, C216		CFTYA103J50
	C207, C208		CFTYA104J50
	C209, C210		CFTYA683J50
	C1012, C501, C903		CKCYF103Z50
	C1001-C1003, C1015-C1017, C326		CKCYF473Z50
	C651, C652, C706, C751, C802		CKCYF473Z50
	C852, C853		CKCYF473Z50
	C655, C656		CKSQYB122K50
	C305, C306		CKSQYB123K50
	C307, C308		CKSQYB153K50
	C117, C118		CKSQYB183K50
	C301, C302		CKSQYB221K50
	C309, C310		CKSQYB272K50
	C101-C104		CKSQYB331K50
	C303, C304, C319, C320		CKSQYB332K50
	C123, C124		CKSQYB391K50
	C311, C312		CKSQYB392K50
	C401, C402		CKSQYB472K50
	C105, C106, C121, C122		CKSQYB681K50
	C408		CKSQYB682K50
	C128		CKSQYF103Z50
	C503, C504		CKSQYF473Z50
	C410		CQPA822J100
	C1014 (1000μF/10V)		PCH1117
RESISTORS			
	R501		RA9T683J
	R339, R340 (4.7kΩ)		RCN1028
	R407		RD1/2LMF010J
	R414		RD1/2LMF150J
	R410		RD1/2LMF181J
	R409		RD1/2LMF201J
	R1011		RD1/2LMF331J
	R408		RD1/2LMF4R7J
	R305, R306, R411, R413, R802		RD1/6PM102J
	R1004, R1010, R123, R401, R402		RD1/6PM103J
	R751		RD1/6PM103J
	R121, R343, R753		RD1/6PM104J
	R804, R853		RD1/6PM124J
	R107, R108		RD1/6PM151J
	R809, R810, R859, R860		RD1/6PM152J
	R111, R112		RD1/6PM163J
	R207		RD1/6PM182J
	R319, R320		RD1/6PM183J
	R808, R858		RD1/6PM203J
	R1003, R117, R118, R122, R208		RD1/6PM222J
	R341, R405, R406, R508, R509		RD1/6PM222J
	R806, R851, R856		RD1/6PM222J
	R342, R403, R404, R805, R807		RD1/6PM223J
	R812, R813, R854, R855		RD1/6PM223J
	R861, R862		RD1/6PM223J
	R801		RD1/6PM242J
	R124		RD1/6PM271J
	R311, R312		RD1/6PM272J
	R109, R110, R329, R330		RD1/6PM273J
	R115, R116, R203, R204		RD1/6PM302J
	R1001, R307, R308, R338		RD1/6PM332J
	R101, R102		RD1/6PM334J
	R1002, R321, R322, R717, R718		RD1/6PM362J
	R163, R317, R318, R412		RD1/6PM473J
	R315, R316, R803, R852		RD1/6PM561J
	R325, R326		RD1/6PM562J
	R653, R654, R752		RD1/6PM681J
	R120, R331-R334		RD1/6PM682J
	R1508-R1511, R323, R324		RD1/6PM683J
	R502, R503, R505, R511, R512		RD1/6PM683J
	R515, R811, R814, R857, R863		RD1/6PM683J
	R313, R314		RD1/6PM822J
	R335, R336		RD1/6PM911J
	R301, R302, R309, R310		RD1/6PM912J
	VR851 (2.2kΩ)		RCP1019
	VR801, VR852 (1.0kΩ)		RCP1044
	VR301, VR302 (22kΩ)		RCP1046
	VR101-VR104 (47kΩ)		RCP1047
	VR401, VR402 (100kΩ)		RCP1048
	VR701 (5kΩ)		RCV1089
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN1503	18P CONNECTOR	52045-1845
	CN401	CONNECTOR POST	B2B-PH-K-S
	CN101, CN102	CONNECTOR POST 3P	B3B-PH-K-S
	JA701	4P PIN JACK	RKB-020
	JA902, JA903	REMOTE CONTROL JACK	RKN1004
	X501	CERAMIC RESONATOR	RSS1045
		PCB BINDER	VEF1040
		EARTH METAL FITTING	VNF-091

SUB UNIT

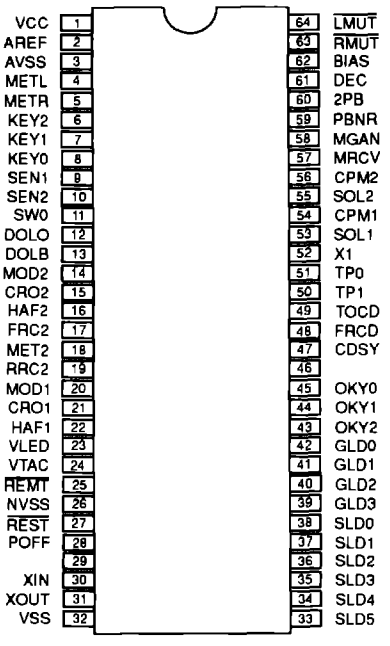
Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	Q1511-Q1514		2SA1309A
	Q1507-Q1510		DTA114TS
	Q1501-Q1506		DTC114TS
	D1523, D1525, D1601, D1602		1SS254
	D1501-D1503, D1507-D1510		MAY5074X
	D1512-D1514, D1517-D1519, D1522		MAY5074X
	D1504, D1505, D1515, D1516		MVR5074X
	D1520, D1521		MVR5074X
	D1511		SLR-342UCT31
SWITCHES AND RELAYS			
	S1601-S1607, S1609-S1622, S1624		RSG1034
	S1625, S1626		RSH1041
RESISTORS			
	All Resistors		RD1/6PM□□□J
OTHERS			
	CN1501	18P CONNECTOR	9607S-18F

9. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ PD5351A (MAIN UNIT: IC501) U-COM IC

● Pin Arrangement (Top View)

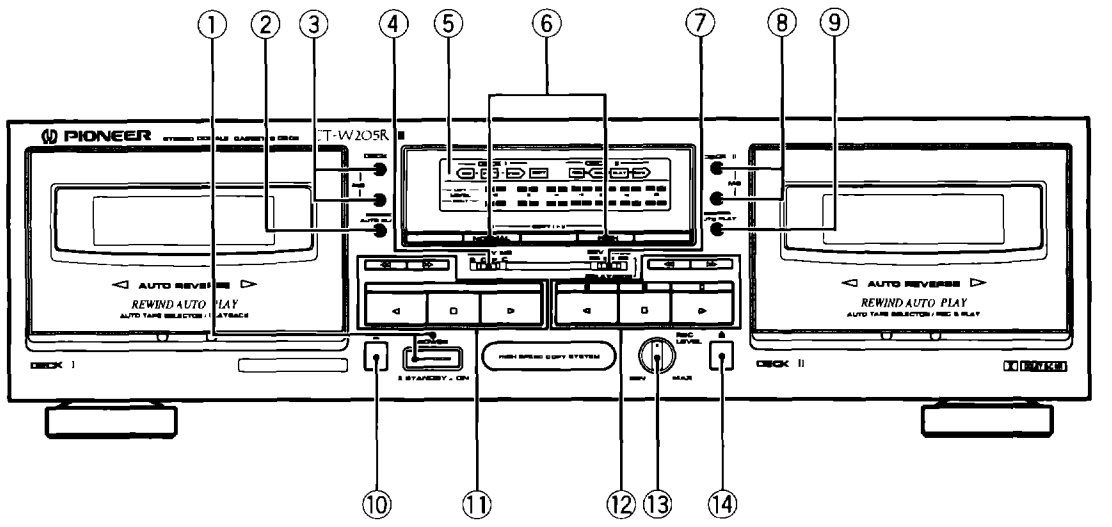


● Pin Function

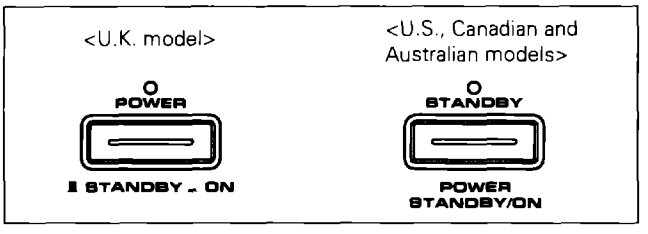
Pin No.	Name	I/O	Function
1	VCC	I	Power supply 5V
2	AREF	I	AREF is connected to 5V, AVSS is connected to GND.
3	AVSS	I	Power supply for the built-in A/D converter.
4	METL	I	Lch level meter input
5	METR	I	Rch level meter input
6	KEY2	I	Key scanning input (Key switch A/D input)
7	KEY1	I	
8	KEY0	I	
9	SEN1	I	Take-up side sensing pulse. Primary side input
10	SEN2	I	Take-up side sensing pulse. Secondary side input
11	SW0	I	Dolby NR SW, REVRS SW DC input
12	DOLO	O	Dolby NR control When Dolby NR OFF, DOLO: "H". When Dolby NR B, DOLB: "H".
13	DOLB	O	
14	MOD2	I	Mechanical SW input voltage "L" when all the following SWs are ON. Mode SW, chrome SW, half SW, forward record disable SW, metal SW, reverse record disable SW.
15	CRO2	I	
16	HAF2	I	
17	FRC2	I	
18	MET2	I	
19	RRC2	I	
20	MOD1	I	"L" when all the following SWs are ON. Mode SW, chrome SW, half SW.
21	CRO1	I	
22	HAF1	I	

<table>
<tr><th>Pin No.</th><th>Pin Name</th><th>I/O</th><th>Pin Function</th></tr>
<tr><td>23
24</td><td>VLED
VTAC</td><td>I
I</td><td>Power supply SW version select input
<table>
<tr><td></td><td>POWER SW (tact)</td><td colspan="2">POWER SW (mechanical)</td></tr>
<tr><td></td><td>With LED</td><td>With LED</td><td>Without LED</td></tr>
<tr><td>VTAC</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>VLED</td><td>H or L</td><td>H</td><td>L</td></tr>
</table>
H: 5V
L: GND</td></tr>
<tr><td>25</td><td>$\overline{\text{REMT}}$</td><td>I</td><td>Remote commander signal input</td></tr>
<tr><td>26</td><td>NVSS</td><td>I</td><td>Chip operation mode control. Connected to GND.</td></tr>
<tr><td>27</td><td>$\overline{\text{REST}}$</td><td>O</td><td>Reset signal input. ("L" when reset.)</td></tr>
<tr><td>28</td><td>POFF</td><td>I</td><td>Power off signal input. ("H" when power off.)</td></tr>
<tr><td>29</td><td></td><td>O</td><td>Connected to a pull-down resistor.</td></tr>
<tr><td>30
31</td><td>XIN
XOUT</td><td>I
O</td><td>Connected to the main clock (6.3 MHz).</td></tr>
<tr><td>32</td><td>VSS</td><td>I</td><td>Power supply GND</td></tr>
<tr><td>33
34
35
36
37
38
39
40
41
42</td><td>SLD5
SLD4
SLD3
SLD2
SLD1
SLD0
GLD3
GLD2
GLD1
GLD0</td><td>O
O
O
O
O
O
O
O
O
O</td><td>Display output
(Soft scanning output)</td></tr>
<tr><td>43
44
45</td><td>OKY2
OKY1
OKY0</td><td>O
O
O</td><td>Output for detecting Dolby NR SW, REVRS SW.</td></tr>
<tr><td>46</td><td></td><td>O</td><td>Connected to a pull-down resistor.</td></tr>
<tr><td>47
48
49</td><td>CDSY
FRCD
TOCD</td><td>I
I
O</td><td>CD SYNCHRO input/output
When SYNCHRO jack IN, "L" input.
During CD play, "L" input.
When SYNCHRO REC, TOCD is output in "H".</td></tr>
<tr><td>50
51</td><td>TP1
TP0</td><td>O
O</td><td>
<table>
<tr><td></td><td>NOR</td><td>CRO</td><td>MET</td></tr>
<tr><td>TP0</td><td>L</td><td>H</td><td>L</td></tr>
<tr><td>TP1</td><td>L</td><td>L</td><td>H</td></tr>
</table>
H: 5V
L: GND</td></tr>
<tr><td>52</td><td>X1</td><td>O</td><td>Motor speed adjustment. When X1 speed, "H".</td></tr>
<tr><td>53
54</td><td>SOL1
CPM1</td><td>O
O</td><td>Deck 1 side mechanical control output
Solenoid control
Capstan motor control</td></tr>
<tr><td>55
56</td><td>SOL2
CPM2</td><td>O
O</td><td>Deck 2 side mechanical control output
Solenoid control
Capstan motor control</td></tr>
<tr><td>57</td><td>MRCV</td><td>O</td><td>Meter circuit recovery time control. (When recovery FAST, "H".)</td></tr>
<tr><td>58</td><td>MGAN</td><td>O</td><td>Meter circuit gain select. (When MS, "H".)</td></tr>
<tr><td>59</td><td>PBNR</td><td>O</td><td>When a normal tape is played back, "H" is output.</td></tr>
<tr><td>60</td><td>2PB</td><td>O</td><td>When deck 2 is played back, "H" is output.</td></tr>
<tr><td>61</td><td>DEC</td><td>O</td><td>DECODE/ENCODE output. When DECODE, "H". When ENCODE, "L".</td></tr>
<tr><td>62</td><td>BIAS</td><td>O</td><td>Bias control. (When bias ON, "H".)</td></tr>
<tr><td>63</td><td>$\overline{\text{RMUT}}$</td><td>O</td><td>REC MUTE control. (When MUTE ON, "L".)</td></tr>
<tr><td>64</td><td>$\overline{\text{LMUT}}$</td><td>O</td><td>LINE MUTE control. (When MUTE ON, "L".)</td></tr>
</table>

10. PANEL FACILITIES



● Illustration shows U.K. model.



① **POWER (STANDBY ON) switch (U.K. model)**

POWER STANDBY/ON switch (U.S., Canadian Australian models)

The POWER switch activates the secondary transformer only. Even when the switch is in the STANDBY position, there will be a power flow to the deck's circuits as long as the power cord is connected to a power outlet. The indicator lights when the unit functions enter STANDBY, and it goes off when the power is turned on.

② **DECK I REWIND AUTO PLAY button**

③ **DECK I MS(music search) +,– buttons**

④ **DOLBY* NR switch (B/OFF/C)**

*

- *Dolby noise reduction and manufactured under license from Dolby Laboratories Licensing Corporation.*
- *"DOLBY", the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.*

⑤ **Function display**

⑥ **Synchro copy buttons (COPY I ► II)**

NORMAL: Normal speed copy
HIGH : Double speed copy

⑦ **Reverse mode switch (REV MODE RELAY/SKIP)**

⑧ **DECK II MS(music search) +,– buttons**

⑨ **DECK II REWIND AUTO PLAY button**

⑩ **DECK I eject button (⏏)**

- If the tape is moving (playback, tape winding, etc.), press the stop (■) button before pressing this button.

NOTE:

If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

⑪ **Deck I operation buttons**

◄ : Reverse playback
► : Forward playback
◄◄ : Fast reverse
■ : Stop
►► : Fast forward

⑫ **DECK II operation buttons**

◄ : Reverse playback
► : Forward playback
◄◄ : Fast reverse
■ : Stop
►► : Fast forward
○ : Recording mute
II : Pause
● : Recording

⑬ **Recording level control (REC LEVEL)**

⑭ **DECK II eject button (⏏)**

- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

NOTE:

If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

11. SPECIFICATIONS

System ..... 4-track, 2-channel stereo
Heads "Hard Permalloy" recording/playback head x 1
"Hard Permalloy" playback head x 1
"Ferrite" erasing head x 1
Motor ..... DC servo motor x 2
Wow and Flutter ..... 0.09% (WRMS)
±0.19% (DIN)
Fast Winding Time ..... Approximately 100 seconds (C-60 tape)
Frequency Response
–20 dB recording:
TYPE IV (Metal) tape ..... 20 to 16,500 Hz
TYPE II (High/CrO_2) tape ..... 20 to 16,000 Hz
TYPE I (Normal) tape ..... 20 to 16,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF ..... More than 57 dB
Noise Reduction Effect
Dolby B-type NR ON ..... More than 10 dB (at 5 kHz)
Dolby C-type NR ON ..... More than 19 dB (at 5 kHz)
Harmonic Distortion ..... No more than 0.8%
(at –4 dB: 160 nwb/m)
Input (Sensitivity)
LINE (INPUT) ..... 100 mV (Input impedance 68 kΩ)
Output (Reference level)
LINE (OUTPUT) ..... 0.5 V (Output impedance 1.9 kΩ)

Subfunctions

- Automatic reverse
- DOLBY B/C type NR
- Music search over ±15 selections
- Synchronized copy start
- High-speed and normal-speed copy (DECK I → DECK II)
- Relay playback/blank skip
- Peak level meter with peak-hold function
- Automatic space recording mute
- Automatic tape selector
- SR System remote control available
- Rewind -Auto play

Miscellaneous

Power Requirements
U.K. and Australian models ..... AC 220 ~ 230 volts, 50/60 Hz
U.S. and Canadian models ..... AC 120 volts, 60 Hz
Power Consumption 16W
Dimensions ..... 420 (W) x 125 (H) x 250 (D) mm
16 - 9/16 (W) x 4 - 7/8 (H) x 9 - 13/16 (D)
Weight (without package)
U.K. and Australian models ..... 3.9 kg
(8 lb 10 oz)
U.S. and Canadian models ..... 3.8 kg
(8 lb 6 oz)

Accessories

Operating instructions 1
Connection cord with pin plugs 2
SR Remote control cord 1

NOTE:
Specifications and design subject to possible modifications without notice, due to improvements.